
ZWNF

1 January – 31 December 2022
2022 Annual Report for
the Zoo and Wildlife
Nutrition Foundation



Ron Magill

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Lisa Hubbard

“I didn’t save the world, but I did try to help the world’s animals survive by being a Zoo Nutritionist.”
- Sue Crissey

The most current information on the Foundation, as well as a link to donate in support of our important work, can be found at:

<https://nagonline.net/zwnf/>

We encourage your continued interest in the Foundation and its mission, as well as your support for the work that the Foundation does to train the next generation of zoo nutritionists!

Thank you!

ZWNF

OUR MISSION

- ❑ Provide nutrition education and advice for captive feeding programs in concert with the Association of Zoos and Aquariums (AZA) Nutrition Advisory Group (NAG)
- ❑ Participate in, and contribute to, global and regional nutrition research programs.



The Zoo and Wildlife Nutrition Foundation (ZWNF) is a Texas nonprofit corporation formed by concerned individuals to promote zoo and wildlife nutrition

OUR ACTIONS

- **Maintain funds to support nutrition education and training**
- **Administer a portion of those monies via the Sue Crissey Animal Nutrition Residency Fund (SCARF) which is pivotal in training the next generation of zoo nutritionists**
- **Facilitate the procurement and management of funds to support the ZWNF/NAG Conference on Zoo and Wildlife Nutrition**
- **Support research projects that further the understanding of exotic animal nutrition.**



- **Provide technical, financial, and administrative support for the NAG and its website (<https://nagonline.net>)**

OUR PRESIDENT

As we entered 2022, we hoped we could leave the challenges associated with the pandemic behind. We had a very successful virtual conference in 2021, with our largest attendance of any conference we've ever held. In 2022, the focus of the Foundation was to keep the momentum moving forward.

In April, our third SCARF resident, Siga Lapinskas, was hired as the Nutrition Center Manager at the Lincoln Park Zoo. The final report detailing her residency experiences is included herein and we wish her continued success in her professional career!

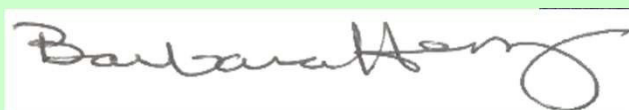
In August, we awarded a \$500 travel grant for a student to attend the Comparative Nutrition Society meeting in Utah, and we will provide interim updates on the research grants we awarded in 2021. These projects are supported in order to increase the zoo and wildlife nutrition knowledge base and move the field forward.

In September, the Board of Directors met in person at the Cincinnati Zoo & Botanical Garden to have a one-day strategic planning session. Our goal for this day was to look back over our 10-year history, clearly identify the wins (and losses), how we arrived at those, and set the direction for a future of dynamic growth. Look for details of this retrospective examination and future goals in the section on "Celebrating our successes over the last ten years and defining our trajectory for the next ten" in this report.

In December, we were excited to share the call for proposals for the SCARF grant to train the fourth zoo nutrition resident and the committee is in the evaluation process as this report is being finalized.

As always, we appreciate and encourage your continued interest in the Foundation and its mission, as well as your support for the work that the Foundation does to train the next generation of zoo nutritionists!

Thank you!



Barbara Henry, MS
President, Board of Directors, Zoo and Wildlife Nutrition Foundation
Curator of Nutrition, Cincinnati Zoo & Botanical Garden

Celebrating Our Successes Over the Last 10 years and Defining our Trajectory for the Next 10!

Early in the Fall, the Board of Directors met in Cincinnati to examine the first decade of accomplishments and challenges and worked to define the goals for the next ten years. Over our first ten years (2012-2022) the Foundation has been quite successful in meeting its goals. We have provided over \$56,000 to support training qualified zoo nutritionists through the SCARF program, \$9,000 to support 21 students to travel and participate in nutrition conferences around the country, and \$10,477 to support 6 research projects.

With a strong ten years behind us, we look towards the future with clear expectations of continued (and amplified) success. To this end, the Foundation proposes the continued attention to the original purposes of the organization while working towards independent goals to further the field of zoo nutrition.

OUR GOALS

- **Renewed commitment to and expansion of the SCARF, research, and travel grants**
- **Brand recognition for the Foundation being recognized as a trusted and knowledgeable resource to help define the future of the field of zoo and wildlife nutrition**
- **Strategic partnerships with other zoo and wildlife nutrition organizations**



Celebrating Our Successes Over the Last 10 years and Defining our Trajectory for the Next 10!



Given the resource-challenged environment within which zoos, aquariums, and wild animal parks must function, the partnership between the AZA NAG and the ZWNF is designed to maximize the impact that professional zoo nutritionists have on the care and management of our current and future collections, as well as on the training and leadership of the next generation of zoo nutritionists.



The future of this collaboration appears bright for not only the impact both groups can have on the field, as a whole, but also on all of the groups we collectively serve and partner. If you have any questions or are interested in supporting these efforts, please do not hesitate to reach out to any of the ZWNF Board members to see how you can become involved or how your financial support can best be used to contribute to the continued success.



Ron Magill

The ZWNF/NAG Conference heads to



September, 2023!

We are happy to announce the 15th ZWNF/NAG Conference on Zoo and Wildlife Nutrition which will be held between 17-20 September 2023 in Nashville, TN, in coordination with AAZV.

Nashville has a bunch of nicknames, but one of the more eclectic is “Athens of the South.” This refers to the numerous institutions of higher learning and some of the noteworthy architecture that can be found in the city (like the Capitol Building and the “Parthenon”). For the Foundation and the NAG we hope to have another successful conference of sharing and learning in 2023!



The ZWNF/NAG Conference

Nashville, TN, September 17-21, 2023

As we planned this Conference, we considered the success of the 2021 virtual conference (over 180 participants at a time when the pandemic still did not allow us to gather in person). So, for this year, we have decided that we will try a hybrid option, perhaps the best of both worlds! We will have an in-person conference with all of the opportunities to connect with friends and colleagues, see smiles, and hear the clank of glasses raised to toast long physical separations AND we will share our content virtually to those who cannot (for any of a myriad of reasons) attend in person once again. We hope that this allows for not only the connections an in-person meeting can bring, but also the far and wide reach of the virtual component, as we seek to spread the “gospel of nutrition.”

WORKSHOP

(Sunday, Sept 17th)

Sustainability and Resilience for Zoo and Aquatic Nutrition Programs in the Face of Climate Change

- a collaborative and discussion-based process as participants learn about the stages of the climate vulnerability assessment and adaptation strategies for zoos and aquariums
- Participants will leave with a better understanding of how climate change may impact their organization and with actionable strategies to be better prepared for what lies ahead



Integrated Zoo and Wildlife Nutrition Project Introduction

- Compiling and curating the data
- Developing software and analysis tools with Commissary management
- Community development of expertise and fundraising

The ZWNF/NAG Conference

Nashville, TN, September 17-21, 2023!

Invited Presentations

- Diet alterations in response to habitat modification in drought with marsupials
- Browse & Toxic Plants
- Practical aspects of Microbiome uses in research
- Interpretation of Vitamin D methodology



As with every conference we have hosted, we anticipate and are excited about a broad variety of topics from the at-large paper submissions that are the foundation of our program. We are looking forward to another very successful conference as we celebrate 30 years of gathering together with friends, new and old. Please consider joining us in person in Nashville (or virtually if you must)!

Ron Magill

ZWNF Research Fund Update

Pangopups and Puggles



With the ZWNF Research Funds we were able to investigate aspects of macronutrient composition of pangolin and echidna milk. We show that pangolin milk is high in protein while moderate in fat and sugar. This is similar to other large insectivores including the giant anteater, despite the large phylogenetic distance between them.

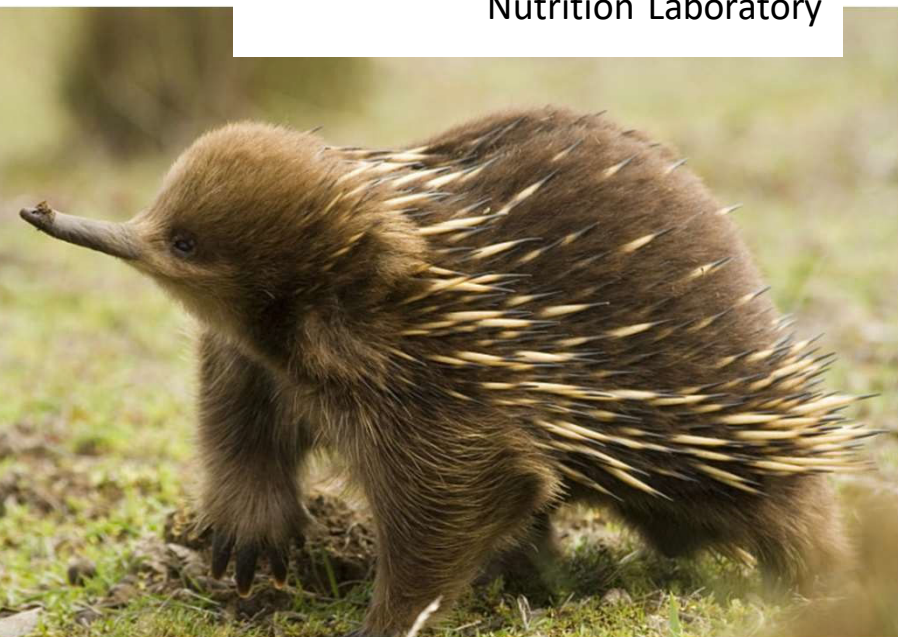
Dr. Michael L. Power

Animal Scientist - Smithsonian
Nutrition Laboratory

Our studies on echidna milk led to supplementing the original milk replacer formula with additional sulfur amino acids, which resulted in improved quill formation by the puggles. We suspect that pangolin milk will also be high in sulfur amino acids for the production and hardening of the plate-like

scales. *Michelle Shaw*

Zoo & Wildlife Nutritionist
Taronga Zoo



ZWNF Research Fund Update

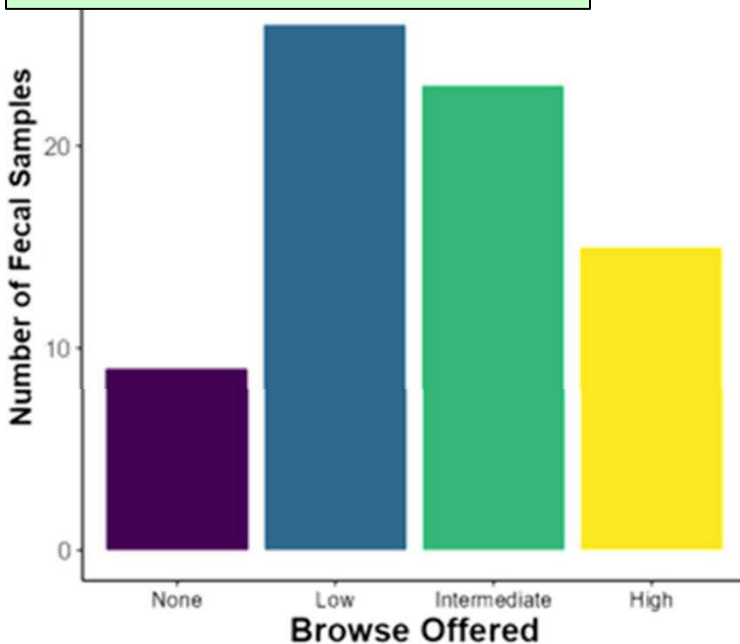
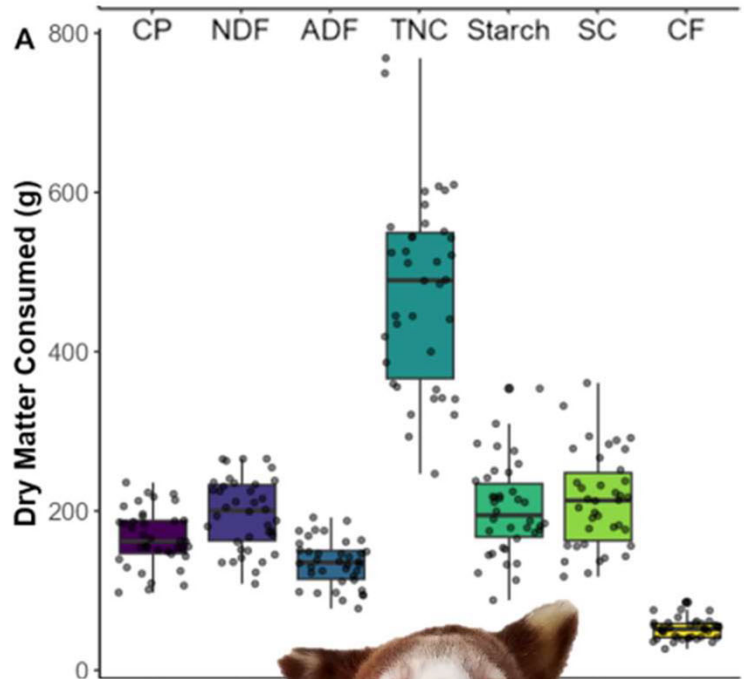
Matschie's Tree Kangaroo:

Diet, Environment and the Gut Microbiome

We have collected detailed diet and consumption information, bodyweights, and fecal samples from 36 SSP Tree Kangaroos. Additional samples have been collected from 8 Tree Kangaroos at the Port Moresby Nature Park and from wild Tree Kangaroos at the Port Moresby Nature Park and from wild Tree Kangaroos in the YUS Conservation Area in Papua New Guinea. DNA extracts are being analyzed and results pending!

Dr. Diana Koester

Curator of Research
Cleveland Metroparks Zoo



ZWNF Research Fund Update

Chimpanzee Nutrition

Our chimpanzee nutrition work is ongoing. We have collected 94 blood samples from chimpanzees housed in Australia, the Republic of Congo (ROC) and the USA. We have analyzed nutrition parameters (Anion Gap, BUN, Crea, iCa, Cl, Glu, Hct, Hb, K, Na, P, TCO) for all 94 animals. For the 44 ROC individuals we also have comparative human lab values for Glu, P, BUN



and Crea as well as Fe, Chol, Glycated H1Abc, Trig, and Vit D. We also have microbiome and fatty acid blood spot samples from over 60 ROC and USA chimpanzees to be analyzed. We are in the process of collecting more samples during the summer of 2023 for lab analyses in the Fall of 2023. We are excited about our continued chimpanzee nutrition research.

Dr. Kimberly Angel Van Houten
Associate Professor of Teaching
NC State University



ZWNF Research Fund Update

Using NIR to predict nutrients in fish, meat, and whole prey items

In year 1 of the study, 49 feed samples, including rodents, chicks, quail, fish, squid, insects, eviscerated plucked chicken, ground horsemeat, and horsetails were used to develop near infrared calibration equations. Samples were homogenized, scanned using the expensive Labspec NIR contact probe. Samples were then dried, ground, and analyzed for protein, fat, gross energy (GE), and moisture. Cross validation indicated that the calibrations were successful, with R^2 values ≥ 0.82 for protein, fat, GE, and moisture, and low error values.



In year 2, 41 new samples including rodents, quail, fish, insects, feathered and eviscerated plucked chicken, ground horse and beef, and rabbits, were scanned and analyzed using the same methods in Year 1. In addition, the undried homogenized samples were scanned using the Tellspec, an economical handheld NIR instrument. Samples in year 2 were predicted using the calibration developed using the Labspec instrument in year 1, and conversely, samples collected in year 1 were predicted using the calibration developed using the Labspec from year 2. Error values (SEP) were high, and more work is needed to identify outliers in the dataset to explain the high error.



Both NIR instruments were comparable in predicting fat, GE, and moisture, and the Tellspec was better at predicting protein, indicating the more affordable handheld instrument, can be used to develop calibrations and predict protein, fat, GE, and moisture in undried fish, meat and whole prey items.

Dr. Larissa J. Janczewicz

Calgary Zoo



2022 ZWNF Travel Grant

Molly Kittson – CNS 2022, Solitude, Utah

“Attending the 2022 CNS conference was an amazing experience. I made so many new connections and, in some cases, even friends. I also presented my own research and received valuable feedback that I feel made my project and papers that much stronger. I am looking forward to the 2024 CNS and cannot wait to hear about new research in the industry!”

Molly Kittson





Susan Crissey Animal Nutrition Residency Fund (SCARF)

SCARF was established on November 14, 2002, by the Chicago Zoological Society and the NAG. SCARF was established to acknowledge and honor the significant impact that Sue Crissey, Ph.D. had on the field of zoo nutrition during her fifteen (15) years at Brookfield Zoo. Sue died at 51 after an extended battle with ovarian cancer. During Sue's time at the Brookfield Zoo, she expanded the nutrition program from one of diet purchase and preparation to a program of cutting-edge research and problem solving. She led the development of the institutional coalition called the Zoo Nutrition Network. She and her staff were active in publishing many papers and worked to integrate zoo animal nutrition research with nutritional studies of wild-living animals.



One of Sue's greatest commitments was to train, professionally develop, and engage the next generation of zoo nutritionists. To that end, Sue participated in the training of three residents during her time at Brookfield, and those individuals became successful zoo nutritionists at other AZA zoos. It is the hope that SCARF will continue to celebrate Sue's tremendous achievements and contributions to expanding the field of zoo animal nutrition by providing support for residencies in zoo animal nutrition that will improve the welfare of animals in zoos and aquariums.



Residents

**2007 Kibby Treiber, Ph.D. - Fort Worth Zoo
Current position: Zoo Nutritionist, Zoo Miami**



**2011 Adam Reppert, MS, RD,
LDN – Fort Worth Zoo
Current position: Staff
Nutritionist, Fort Worth Zoo**



**2020 Siga Lipinkas, MS – Toronto Zoo
Current position: Animal Nutrition
Manager, Lincoln Park Zoo.**



Siga Lapinskas

Completes SCARF Residency at Toronto Zoo



It is hard to imagine that the third SCARF Nutrition Residency is complete. Siga Lapinskas, MS, was the third SCARF resident in the program and was stationed at the Toronto Zoo for the last two years. The previous SCARF residents were trained at the Fort Worth Zoo and matriculated into full time positions: Kibby Treiber at Zoo Miami and Adam Reppert (staying) at the Fort Worth Zoo. In fact, Siga was one of the first interns overseen by a fellow SCARF resident, Kibby Treiber.

During the last stretch of her residency, Siga took a much larger leadership role which was a fitting end to her training. She was able to oversee clinical cases utilizing nutrition knowledge, creativity, and teamwork to help problem solve. Siga shared that she had an incredible journey during her two-year training at Toronto Zoo and very much benefited from the experiences and the individuals she worked with at the Zoo. She will take this knowledge and these experiences as she journeys to her new position as the Nutrition Manager at the Lincoln Park Zoo.

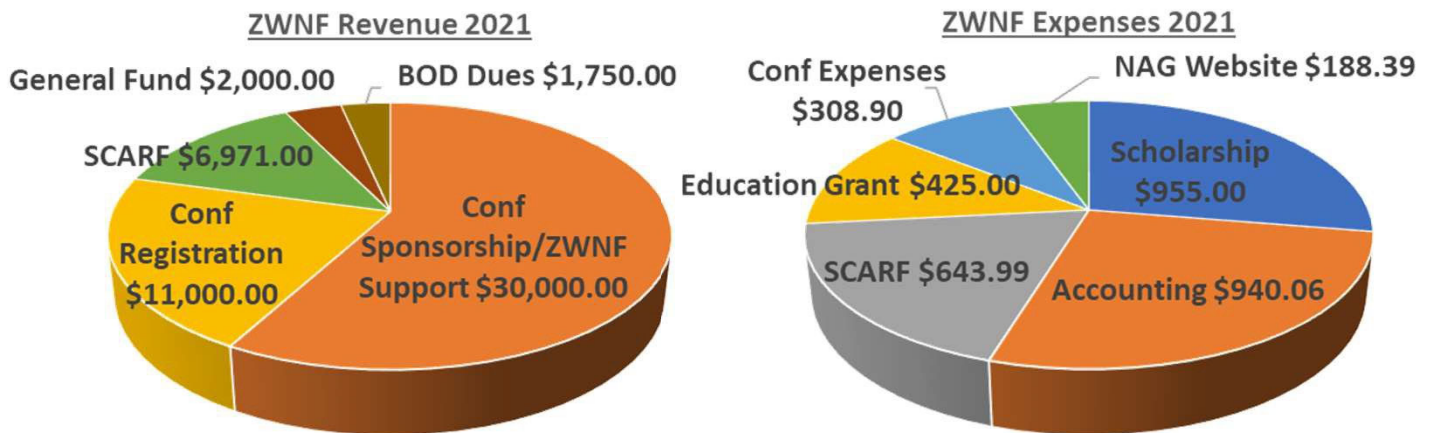


We wish Siga continued success in her future career in the profession!

2021-2022 Financial Statements

One of the main roles of the ZWNF and NAG is to host the Conference on Zoo and Wildlife Nutrition every other year. The Foundation revenue and expense reports look very different between conference and non-conference years due to registration fees, sponsorship donations, and off-setting conference expenses. Here we share the previous two years of financial statements to highlight the importance and impact of the Conference and the fund raising that occurs at that time.

2021 Virtual Conference Year



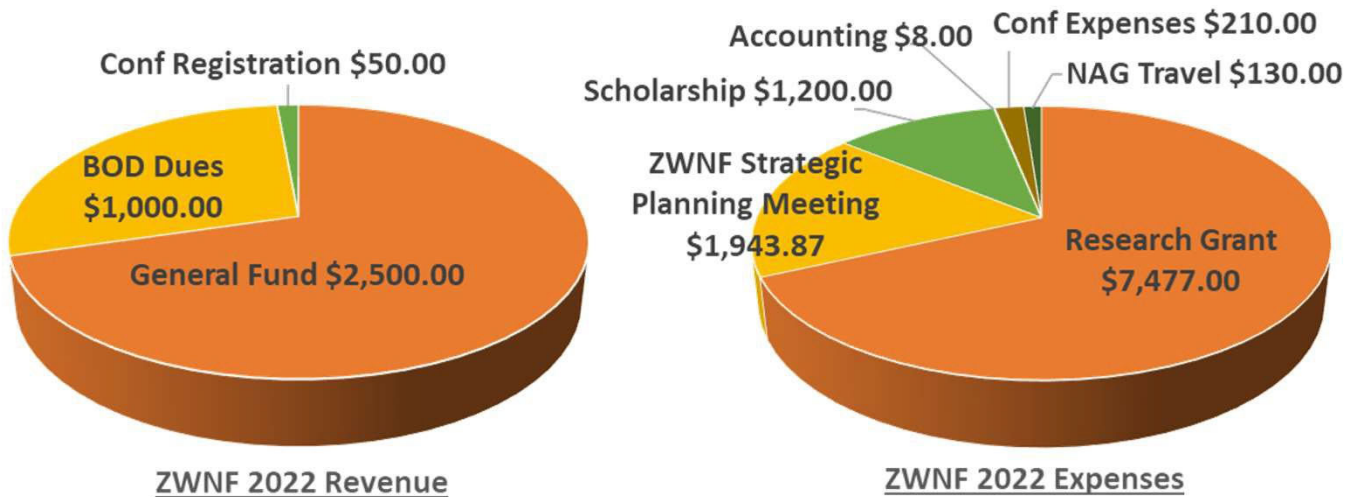
The 2021 Conference was well-attended by zoo nutrition professionals, students and veterinarians alike. Sponsorship donations and conference registration made up the largest portions of revenue. Conference expenses were extremely low without the onsite conference-related expenses.

- The SCARF fundraiser outdid the previous conference as the most successful to date, generating **\$6,327.01** in revenue thanks to an increase in generous donations for auction items, fierce bidding, and the reasonable expenses per the on-line process.
- Funds were used for student awards/scholarship, continuing education credits, and the education grant.
- For the year, revenues exceeded expenses by **\$48,259.66**.

2021-2022 Financial Statements

2022 was not a Conference year. The main contributor to revenue was general fund donations. A few conference-related additions (registration) were accounted for in 2022 instead of 2021. Revenue remains considerably less for a non-conference year due to a lack of fundraising.

2022 Non-Conference Year



- **>75%** of expenses were for research grants and scholarship awards.
- Expenses exceeded revenue by **\$7,418.87**



Dan McGillicuddy

MEET OUR BOARD

PRESIDENT: BARBARA HENRY, MS



Barbara has been the curator of nutrition at the Cincinnati Zoo & Botanical Garden for the past 18 years and worked 10.5 years at the Brookfield Zoo as the second nutrition resident, and then staff nutritionist. Additionally, she loves to experiment with recipes in the kitchen and plant new perennials in her gardens



VICE PRESIDENT: MIKE MASLANKA, MS

Mike is the Head of the Department of Nutrition Science at the Smithsonian National Zoo and Conservation Biology Institute, and the Chair of the AZA Nutrition Advisory Group. He is active in clinical nutrition, lab- and field-based nutrition research, commissary operations, and day to day land resource management at both Zoo facilities.



**SMITHSONIAN'S NATIONAL ZOO
& CONSERVATION BIOLOGY INSTITUTE**

SECRETARY: SHANNON LIVINGSTON, MSc



Shannon has been part of the Nutrition team at Disney's Animal Kingdom for 15 years. Prior to that, Shannon worked in the Animal Nutrition Center at the Toronto Zoo for 12 years.



MEET OUR BOARD

TREASURER: ANN WARD, MS



Ann has been the Director of Nutritional Services (formulation, operations, and laboratory) at the Fort Worth Zoo for 27 years. Prior to that she completed the first zoo nutrition residency at the Brookfield Zoo with Sue Crissey, Ph.D.



MEMBERS: MARK EDWARDS, PHD

As Professor at California Polytechnic State University, Mark shares a passion for animal nutrition with students drawing upon his experience leading nutrition programs of the Zoological Society of San Diego and Smithsonian National Zoological Park. Mark was introduced to zoo animal nutrition when selected to serve as an undergraduate research intern by Sue Crissey, Ph.D.



LIZ KOUTSOS, PHD

Liz has spent more than 21 years in the comparative nutrition field, working in academia, the feed manufacturing industry, consulting with zoos and aquariums, and now in rearing insects for animal feed applications. Her favorite animal, other than black soldier fly larvae, is the walrus.



KIBBY TREIBER, PHD

Kibby has been the Zoo Nutritionist at Zoo Miami for 7 years. Prior to that she served as Nutritionist/Manager at the Fort Worth Zoo for 6 years after being trained as a SCARF resident by Ann Ward, M.S.



2022 Donor Recognition

**\$1000 to
\$5000**

**Fort Worth
Zoological
Association**

\$500

Justin Elsbury

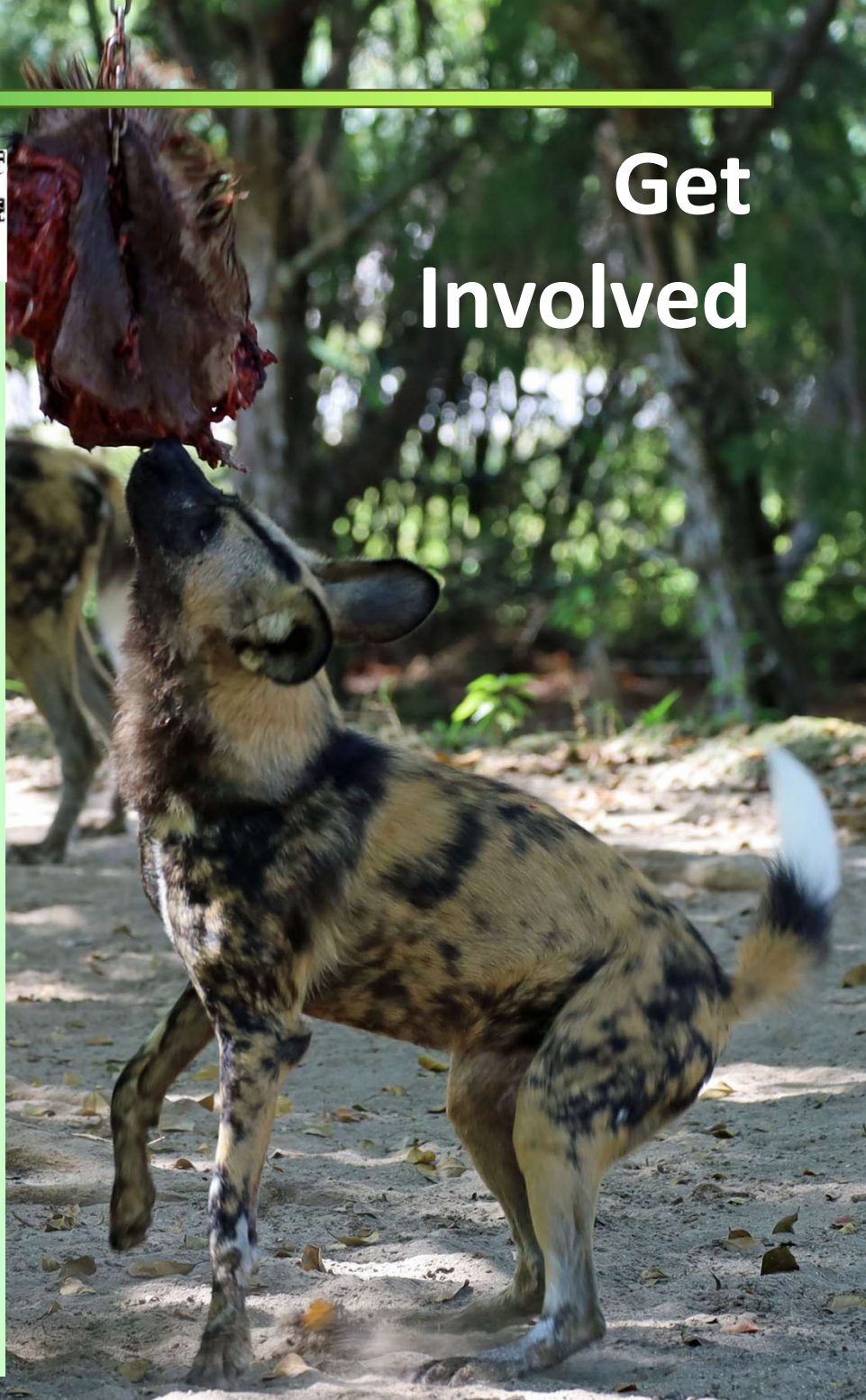
**Thank
you for
your
support!**





Get Involved

The Zoo and Wildlife Nutrition Foundation was created to support the important work of not only the AZA Nutrition Advisory Group, but of the profession of zoo and wildlife nutrition as a whole. The more we learn about appropriate nutrition and diets for wildlife in human care, the greater our ability to manage and propagate those animals, helping to maintain sustainable populations. The more we learn about their free-ranging counterparts and the ability of habitats to meet the nutritional needs of those animals, the better we can help manage the animals and ecosystems for sustainability.



The ZWNF supports efforts in both realms for the future of sustainable wildlife populations. We sincerely appreciate all those who have donated to help support us to date. Please consider supporting us in our critical endeavors at:

<https://nagonline.net/27/sue-crissey-animal-nutrition-residency-fund-scarf/>

or <https://nagonline.net/zwnf/>

Donations, whether large or small, go directly to achieving our mission.